

DOCKET NO.: T1BO-0009
Application No.: 09/589,167
Office Action Dated: September 11, 2003

PATENT
REPLY FILED UNDER EXPEDITED
PROCEDURE PURSUANT TO
37 CFR § 1.116

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-12: (canceled).

Claim 13 (currently amended) A method for predicting resistance of a ~~pathogen~~human
deficiency virus type 1 (HIV-1) to a therapeutic agent comprising:

(a) providing a neural network;

(b) training a neural network on a training data set, wherein each member of the
training data set corresponds to a genetic mutation that correlates to a phenotypic change that
causes a change in therapeutic resistance of ~~the pathogen~~HIV-1, said training being
performed by

- i) propagating a training data set in a feed-forward fashion,
- ii) calculating the associated error,
- iii) back propagating the error,
- iv) adjusting the weights in the neural network,
- v) minimizing the error function by repeating the steps i), ii), iii), iv),
- vi) ~~using~~inputting a testing data set to ensure proper training, said testing

data set comprising members that correspond to at least one genetic mutation, the presence of
which correlates to that correlate to a phenotypic change that cause a change in resistance of
~~pathogen~~HIV-1 to at least one therapeutic agent, which testing data set is different from the
training data set:

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- (c) providing a determined HIV-1 genetic sequence from a patient said pathogen; by
- i) obtaining [a] an HIV-1 sample from said pathogen the patient.
 - ii) obtaining the genetic sequence from the HIV-1 sample; and
- d) predicting resistance of ~~the pathogen~~ HIV-1 to the therapeutic agent by inputting the determined genetic sequence into the trained neural network which computes the predicted resistance of HIV-1 to a therapeutic agent.

Claim 14-17: (canceled)

Claim 18 (original): The method of claim 13, wherein the neural network is a three-layer feed-forward neural network.

Claim 19 (original): The method of claim 18, wherein the three-layer feed forward network comprises:

- (a) a set of input nodes, wherein each member of the set of input nodes corresponds to a mutation in the genome of the pathogen;
- (b) a plurality of hidden nodes; and
- (c) a set of output nodes, wherein each member of the set of output nodes corresponds to a therapeutic agent used to treat the pathogen.

Claims 20-29: (canceled)